AMENDMENT TO THE CLAIMS

Please amend the claims as follows:

1. (Currently amended) An implantable left ventricular assist device ~~using a cylindrical cam~~ which is implanted to a heart-diseased patient to assist the heart, the implantable left ventricular assist device comprising:

an actuator for generating a linearly reciprocating driving force, wherein the actuator comprises a motor for generating a torque and a planetary gear assembly for reducing the torque of the motor;

a pusher plate which performs a linearly reciprocating motion by the actuator;

a blood sac which is contracted and expanded due to compression by reciprocating the pusher plate and the restoration of ~~a~~ the blood sac ~~itself~~; and

a chamber for accommodating the blood sac, the pusher plate and the actuator, combining the same physically, and protecting the same within the body of a patient.

2. (Currently amended) The implantable left ventricular assist device ~~using a cylindrical cam~~ of claim 1, wherein said actuator further comprises:

~~a motor for generating a torque;~~

a major axis which is driven by the motor, including a major axis gear at ~~its~~ an end portion of the major axis,~~;~~

wherein ~~a~~ the planetary gear assembly ~~which~~ is threadedly engaged with the major axis gear ~~and reduces the rotational speed~~;

a minor axis, including a vessel-shaped fixing portion built in the center of the planetary gear assembly, and a cylindrical portion within which a pair of rollers are mounted on a predetermined position, while having a large cylindrical shape with respect to the fixing portion;

a cylindrical cam which is inserted into the cylindrical portion of the minor axis, combined with the pusher plate, provided with a double cam groove along which the rollers move on ~~the~~ an outer circumferential surface of the minor axis, and performs a linearly reciprocating motion according to the rotation of the minor axis; and

a case and a rear cover which is provided with a ring gear threadedly engaged with the planetary gear assembly externally in a corresponding position, enables the motor and the minor axis to rotate together, and accommodates the cylindrical cam, the minor axis, the planetary gear assembly, the major axis and the motor.

3. (Currently amended) The implantable left ventricular assist device ~~using a cylindrical cam~~ of claim 2, wherein said planetary gear assembly comprises three planetary gears which are threadedly engaged with the major axis gear to rotate, and a support plate in which the planetary gears are rotatably fixed and of which the minor axis is fixed in the center.

4. (Currently amended) The implantable left ventricular assist device ~~using a cylindrical cam~~ of claim 2, wherein said cam grooves are in an X-crossed form while forming a substantially sine waveform in the axial direction according to the circumference of the cam outer circumferential surface and have a symmetrical structure with each other.

5. (Currently amended) The implantable left ventricular assist device ~~using a cylindrical cam~~ of claim ~~1~~2, wherein said actuator further comprises a guiding axle which is substantially vertically fixed to the center of the rear cover, and

a guiding piece externally disposed on the guiding axle and fixed to the cylindrical cam, for guiding a linearly reciprocating motion of the cylindrical cam.

6. (Canceled)

7. (Currently amended) The implantable left ventricular assist device ~~using a cylindrical cam~~ of claim 5, wherein a plurality of guiding protrudes are provided ~~with~~ along the axial line on ~~the~~ an outer circumferential surface of the guiding axle, and guiding grooves are formed so that the guiding protrudes are inserted in the opposite positions of the guiding piece corresponding to the guiding protrudes.

8. (Currently amended) The implantable left ventricular assist device ~~using a cylindrical cam~~ of claim ~~6~~5, wherein a plurality of guiding protrudes are provided ~~with~~ along the axial line on ~~the~~ an outer circumferential surface of the guiding axle, and guiding grooves are formed so that the guiding protrudes are inserted in the opposite positions of the guiding piece corresponding to the guiding protrudes.

9. (New) An implantable left ventricular assist device which is implanted to a heart-diseased patient to assist the heart, the implantable left ventricular assist device comprising:

an actuator for generating a linearly reciprocating driving force;

a pusher plate which performs a linearly reciprocating motion by the actuator;

a blood sac which is contracted and expanded due to compression by reciprocating the pusher plate and the restoration of the blood sac; and

a chamber for accommodating the blood sac, the pusher plate and the actuator, combining the same physically, and protecting the same within the body of a patient, wherein the actuator comprises:

a minor axis, including a vessel-shaped fixing portion, and a cylindrical portion within which a pair of rollers are mounted on a predetermined position, while having a large cylindrical shape with respect to the fixing portion; and

a cylindrical cam which is inserted into the cylindrical portion of the minor axis, combined with the pusher plate, provided with a double cam groove along

which the rollers move on an outer circumferential surface of the minor axis, and performs a linearly reciprocating motion according to the rotation of the minor axis.